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☞ See Advertisement on last page.

POETRY.

OLD FRIENDS TOGETHER.

Oh, time is sweet, when roses meet
With spring's sweet breath around them;
And sweet the time when hearts are lost,
If those who love have found them:
And sweet the mind that still may find
A star in darkest weather—
But nought can be so sweet to see
As old friends meet together.

Those days of old, when youth was bold,
And time stole wings to speed it;
And youth ne'er knew how fast time flew,
Or knowing, did not heed it—
Though grey each brow that heeds us now,
(For age brings wintry weather,)
Yet nought can be so sweet to see
As those old friends together.

The few long known, whom years have shown
With hearts that friendship blesses;
A hand to cheer, perchance a tear
To soothe a friend's distresses,
Who helped and tried, still side by side,
A friend to face bad weather—
Oh, thus may we yet joy to see
And meet old friends together.

I COULD NEVER SEE A GOOD REASON.

I could never find a good reason.
Why sorrow unbidden should stay,
And all the bright joys of life's season,
Be driven unheeded away.
Our cares would wake no more emotion,
Were we to our lot but resign'd,
Than pebbles flung into the ocean,
That leaves scarce a ripple behind.

The world has a spirit of beauty,
Which looks upon all for the best,
And while it discharges its duty,
To Providence leaves all the rest:
That spirit's the beam of devotion,
Which lights us through life to its close
And sets like the sun in the ocean,
More beautiful far than it rose.

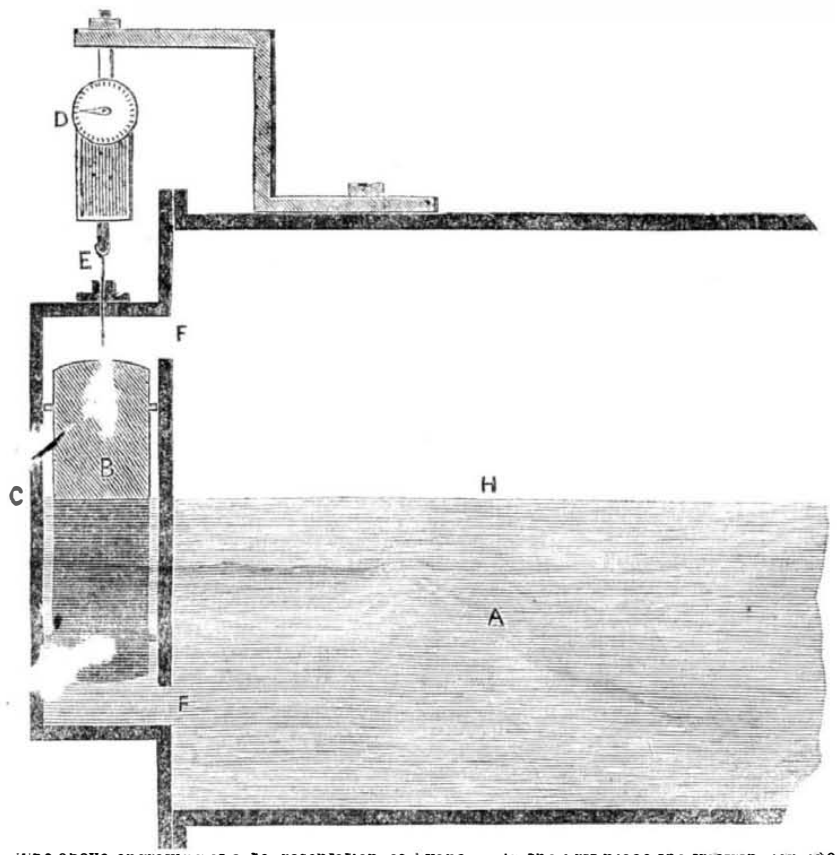
Put a Pint in That.

Seaton, the humorous temperance lecturer, was once making a speech in New Hartford, Oneida Co., when the following keen cutter was shot off with his usual pith. "There are some fine pretenders to temperance.—They'll go into the temperance store and ask for something that they know is not there.—Then over they will go to the dry goods grog store and ask for some kind of goods and keep looking at them until there is none in but the storekeeper, when out of the coat bosom comes a little black bottle, "*put a pint in that.*" Seaton suited the action to the word and the audience was convulsed with laughter, as it had been whispered round that some leading man was guilty of the trick

Emphasising Words.

There is a good story on the subject of emphasis. "Boy," said a visiter at the house of his friend, to his little son, "step over the way and see how *old* Mrs. Brown is." The boy did his errand, and on his return reported that she did not know how old she was; and that he might find out by his own learning.

BOILER WATER BALANCE.



The above engraving is a representation of an invention, the object of which is to indicate with unfailing certainty, and under all circumstances, the actual quantity of water in Steam Boilers with unerring exactness, whether the boiler is foaming or not. The inventor alleges that it is superior to any thing ever invented for this purpose, and cannot be surpassed by any thing to be invented. and he challenges all those who are interested against the success of his invention to deny the correctness of the position he has assumed, and he submits in proof of what he alleges, the following description of his invention:—

In the diagram, A represents the Boiler. B, is a closed cast iron vessel which if entirely immersed in water would still sink with a force equal to four or five pounds. C, is a vessel attached to the boiler at the end or the side, and in which B can move up and down freely. This vessel or apartment communicates freely with the boiler at F F. E, is a platina or gold or other metallic wire (platina is preferred) which is large enough to sustain the weight of B when not immersed in water. The lower end of this wire is attached to B, and passing through a small stuffing box the upper end is attached to a dial-plated spring balance D, as is shown in the diagram. It is seen that B extends from near the top of the boiler to near the bottom and may be extended the whole distance. This being the case the actual quantity of water in the boiler *by weight* will be indicated (without respect to its density) in pounds and ounces on the Spring Balance; while the motion of B up or down, will be confined to the distance to the distance to which the beam or bar of the Spring Balance may be drawn out or in.

It will be seen at once, that none of the objections to a float are applicable to this contrivance. In the first place the friction (in the stuffing box) of a fine platina wire (which, as is well known, is not liable to corrosion) of sufficient size to sustain the weight of B, could not amount to enough to be felt or appreciated in practice—whereas a float requires a rod of such size as to produce a highly objectionrble amount of friction in the stuffing box. In the second place it indicates in pounds and ounces on the dial plate the weight of the *whole column* of water in the boiler. and therefore indicating its quantity, whether the boiler be foaming or not; while a float although it may indicate nearly the point at which the surface of the water or foam stands, it can afford no indication of the density or specific gravity of the water or foam below it, and therefore can afford no reliable indication of the actual quantity of water in the boiler.

This contrivance may be attached to the boiler at the end or side, and in cases where the form of the boiler will admit of it may be suspended in it. Small projections are attached to B, as seen in the diagram, the object of which is to make the inside surface of C act as a guide to B, to prevent it swinging to and fro at sea. By the adoption of this invention and by placing the Spring Balance where its dial plate will always be staring the engineer and the public in the face, the possibility of explosion for the want of water, will be extinct. It is a well known fact to all those who have had any practical experience in Steam Boilers that the best floats are but indifferent indicators, but here is a plan that is warranted to supersede all the objections to the float, the power of the steam and vomit having no effect upon this submerged float—the gravity of the water being the index to the quantity.

Measures have been taken to secure a patent for this invention.

Suicide by a Gazelle.

A curious instance of affection in the animal, which ended fatally, took place last week, at the country residence of Baron Gauci, at Malta. A female gazelle having suddenly died from something it had eaten, the male stood over the dead body of his mate, butting every one who attempted to touch it, then, suddenly making a spring, struck his head against a wall, and fell dead at the side of his companion.

Sugar and Grog.

"Mr. Green," said a tolerably dressed female the other day, entering a grocery in which where several customers, have you any fresh corned pork? "Yes ma'am." "How much is this sugar a pound?" "One shilling, ma'm." "Let me have," she continued, lowering her voice, "half a pint of gin, and charge it as sugar on the book."

The common velocity of overshot wheels is three feet per second.

LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

Our subscribers will forgive the absence of our list of patents from this number, as they had not arrived from Washington at the time of our paper going to press. This is a rare instance of necessity to make an apology for such an omission, and due allowance will be made for the same.

INVENTORS' CLAIMS.

Design for Stoves.

Invented by C. J. Woolsen, of Cleveland, Ohio. Patented 17th July, 1847. Having distinctly represented and described the nature and arrangement of the respective ornaments and figures upon the front plate of his Franklin Stove; where he claims therein as new and secures by Letters Patent, is the configuration and arrangement of said ornaments.

Fire Bricks.

Invented by David Cannon and Heman S. Lucas, of Chester, Mass. Patented July 24, 1847; No. 5198. What they claim as their invention, and desire to secure by Letters Patent, is the compounding of soap-stone, clay and borax in proportion as described, or in similar proportions to produce the like result.

Machines for Paring Apples.

Invented by Jesse Bullock, Jr., and Sewall Benson, of New York. Patented July 24th, 1847. Having fully described the nature of the invention, and described also the manner in which they put their machine in operation, what they claim therein as constituting their improvements and desire to secure by Letters Patent, are the following particulars. First, the arrangement of the spring shaft knife, for paring apples upon a drum wheel (with a knife attached) with the driving wheel, regulated in its operations by the pulley, band and lever, and brought back to its place of starting by means of the spring and cord, and the whole so arranged as to make the entire operation by one revolution of the driving wheel.

Improvement in Straw Cutters.

Invented by Willliam Lewis, of Edgefield Court House, S. C. Patented June 19, 1847. He claims the securing the knives upon the driving wheel in an oblique position to the axle thereof, and combining the same with an oblique rest and feeding rollers for the purpose of giving a horizontal cut upon the straw.

Design for Spoons and Forks.

Invented by Michael Gibney, of New York, N. Y. Patented June 19, 1847.—He claims as his invention and has secured by letters patent the configuration and ornaments to be applied to silver and other metalic spoons, forks and articles of table use.

Improvement in Machinery for grinding Tools.

Invented by William Hovey, of Boston, Mass. Patented Sept. 25, 1845, re-issued June 19, 1847.—What he claims as his invention, and has secured by letters patent, is the application of the stock and the arm in combination with the other parts as elements of machinery.

Improvement in forming Bricks.

Invented by C H. Preston, of New York, N. Y. Patented June 19, 1847.—He states that he does not make any claim for the materials or mixtures used in making bricks in any of the three forms; neither does he at this time describe or make any arrangement of machinery to give these forms; and it is also to be understood that he does not claim to have invented interlocking bricks; neither does he claim the tapering of bricks for arches; but what he does claim as new and of his own invention, and has secured by letters patent, is the making and burning of solid bricks of two, three or more parts, so placed together as to interlock and form bonding when put in use.

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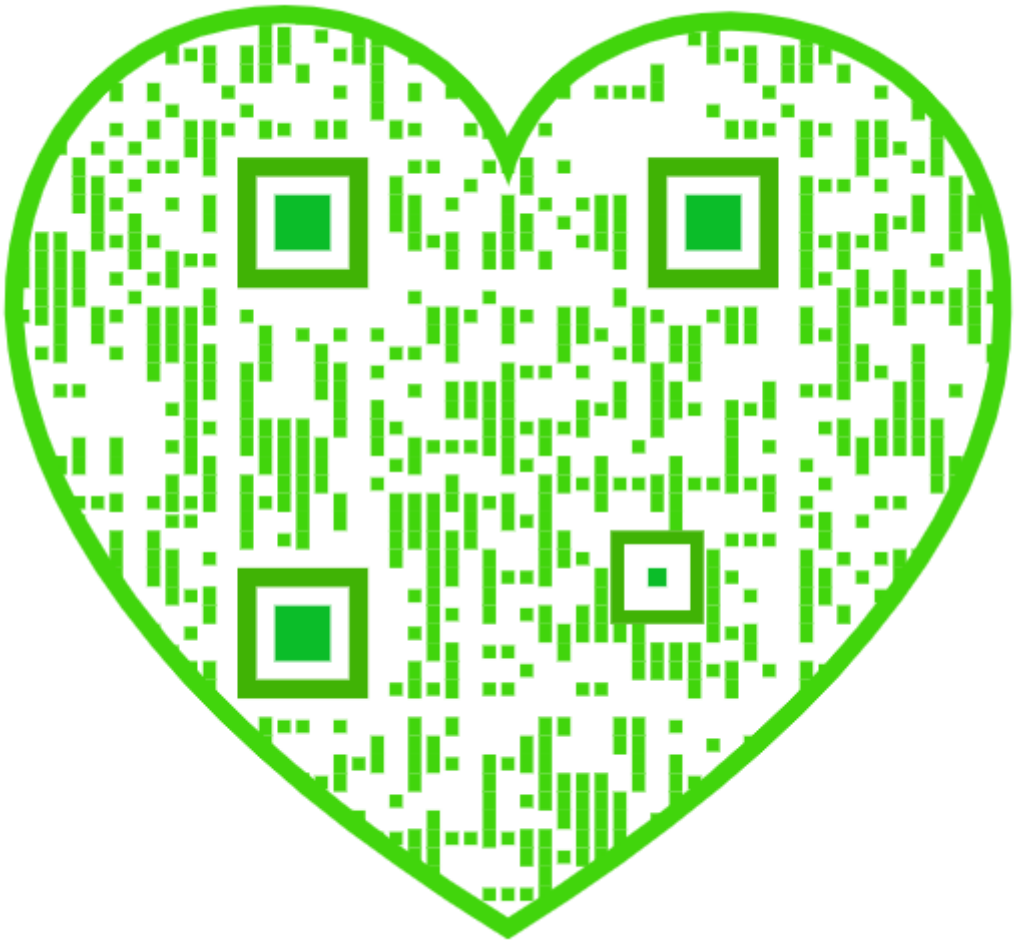

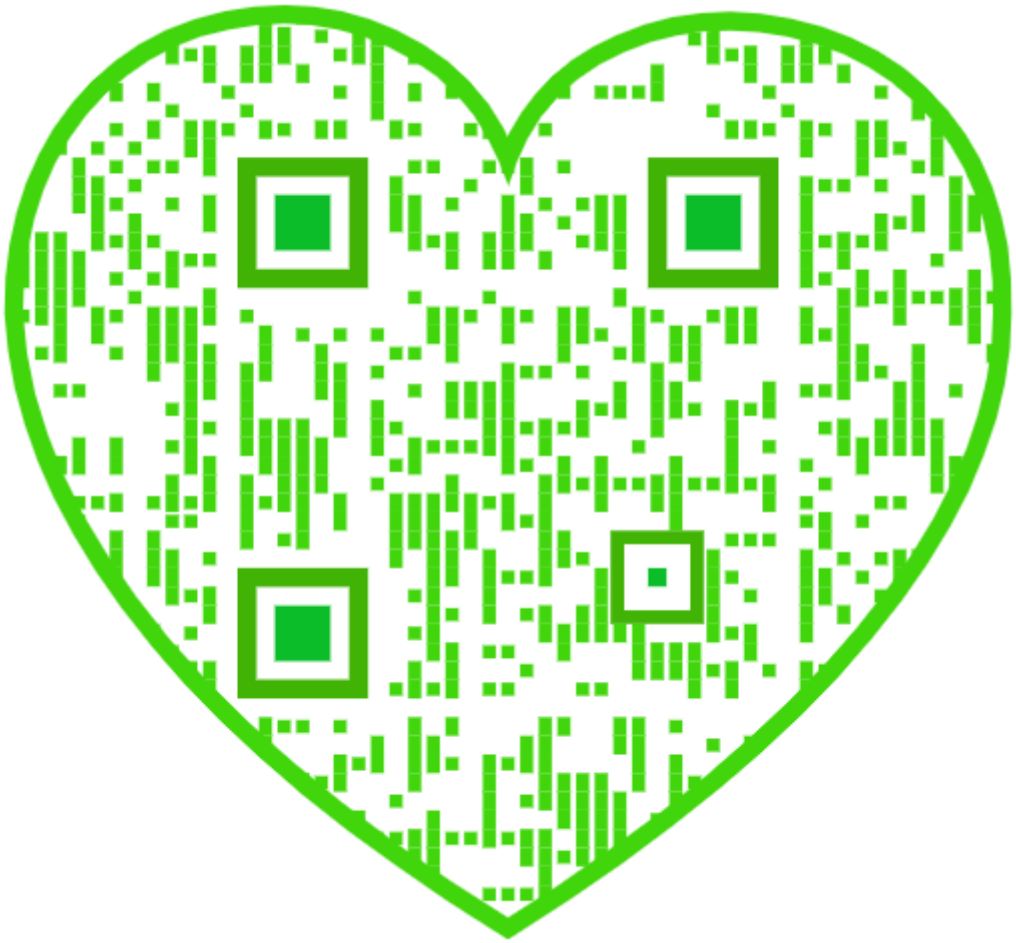

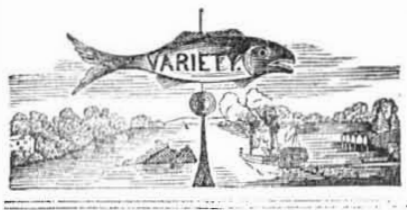

Ornamental Metal Surfaces.

M. Piarget, a French chemist, has discovered a method of silvering metallic plates, which is said to be far superior to any other method. It is done by the deposition of metals during the electrotype process which is conducted in a peculiar manner with mixtures adapted to the effect desired to be attained.—The form of his bath is also peculiar, for when the plate is taken out of it and off the model, it exhibits a burnished polish, or a dead appearance according to the preparation used. Metals which undergo this process, are said to be very flexible and the surface will not tarnish when exposed to the atmosphere.

Platinising by the Moist Way.

Manufacturing and operative chemists will find it exceedingly valuable in order to produce a covering of platina for their copper, &c., vessels, The experiment succeeds best when we make use of a dilute solution of the double chloride of soda and platina. Three immersions suffice; between each immersion it is necessary to dry the surface with fine linen, rubbing rather briskly, after which it must be cleaned with levigated chalk before re-immersion. When copper has been gilded in the moist way, the guilt surface has not a beautiful tint; but, if the copper be previously covered with a pellicle of platina, a very beautiful golden surface may be produced.—*Pharmaceutical Times.*

Scotch Courtesy to America.

The Anniversary of American Independence was celebrated in Glasgow, on the 5th inst., by a dinner in the Wellington Hotel, the American Consul in the chair. The Lord Provost allowed the American seamen belonging to ships in port to parade the streets, preceded by the striped flag. The inhabitants seemed to enjoy the day equally with the Americans, as they boast Glasgow to have been the birth place of the intrepid Gen. John Stark's father.

Ocean Steam Navigation.

It is stated in the Halifax Chronicle, that the Hon. Samuel Cunard, now in England, has entered into a contract with the British government, to carry the mails between Halifax and Bermuda, and Halifax and St. John's N. F. by steam, and that he was about to proceed to Scotland, to make arrangements for the building of four steamships suitable for the service,

Large Farm.

The largest farm in Vermont is that of Judge Meech, at Shelburne, eight miles south of Burlington. A correspondent who has just been over it, says this year he will mow over 500 acres and cut 1000 tons of hay. He keeps 3000 sheep and has now 400 head of neat cattle. A few years ago he sold fat oxen enough to amount to the sum of $2460. He has also sold this season 1009 bushels of rye,

Bread in a Barrel of Flour.

196 lbs. of flour, 11 gallons or 90 lbs. of water, 2 gallons or 16 pints of yeast, and 3 lbs of salt, make 305 lbs of dough, which evaporates in kneading, baking, &c., about 40 lbs., leaving about 265 pounds net of bread.

Improvement in Orchestra Boxes.

Mr. St. Luke, leader of the Orchestra, of the Broadway Theatre. has invented an improvement in Orchestra boxes, which it is said will greatly improve the sound of the music. It is to be introduced in the new Theatre

Large Yield.

A recent letter from the Hon. H. L. Ellsworth, of Indiana, formerly Commissioner of the Patent Office, states that he has 1,000 acres of corn, from which he expects to make 55 bushels to the acre. Only imagine 55,000 bushels of corn on one farm

Experience a Good Teacher.

Having had the privilege of being taxed five dollars for not correctly understanding the Post Office law in regard to publishers forwarding in papers receipts to their subscribers, we subjoin the following information for the special benefit of those who may not have as yet been honored with like courteous demands from that department :—

Pub. Doc —"The publishers of a newspaper may send a printed or written notice to a subscriber stating the amount due on his subscription."

But experience has taught us that a publisher has no right to attach his name to a receipted bill and thereby render it receipted, without paying five dollars for the privilege of so doing. An unreceipted bill may be enclosed in a paper without violating the Post Office law, but if a publisher happens to be so fortunate as to get his pay in advance for a year's subscription, it will not answer to send a bill receipted without exposing himself to a fine for violating the law. Is this true democracy Mr. Johnson ?

Singular Custom.

A singular custom prevails among the Sioux Indians. Whenever a white man has resided among them for the space of a month, he is required to take unto himself a wife.—The chief of the band, among which he is, at the end of this time, comes to him with a young and handsome squaw, whom he must espouse and protect according to their customs, or leave the country immediately.—*Prairie du Chien Patriot.*

Wind Ship.

We see proposals in the Western Expositor, published at Independence, Missouri, for a buffalo hunt on the praries in a Wind Ship, the invention of Mr. William Thomas. He proposes to take along a 6 pounder for defence against the Indians, and four horses to be used to draw the ship in case of a calm. The editor of the Expositer thinks this project is at least "something new under the sun;" and we should consider it at least a very windy one.

Editorial Courtesy.

The editor of a paper in Kentucky says that a brother editor has "cooled off in his ardor about going to Mexico since he learned that the Mexican churches were not to be robbed." Whereupon the "brother editor," rejoins that if it should be officially announced that "the Mexican grog-shops are to be robbed," the editor of the Kentucky paper would be in Mexico in ten days.

Post Office Embezzlement.

William T. Jones, son of Dr. William Jones of Washington city, a young man of twenty two years of age, has been arrested for stealing a letter from the Post Office in that city containing $25. The father of the young man was deeply distressed and entered into a bond of $5000 for the appearance of his son at the Criminal Court in December.

Coin Chart.

J. Thompson, publisher "Bank Note Reporter," at 64 Wall street, has just issued a fac simile of the different gold and silver coins in circulation in this country, with their relative value. It is very neatly executed and is invaluable as a reference for the business man.

Channing on Inhalation of Ether.

Messrs. Fowlers & Wells have just received the above work and offer it for sale, wholesale or retail at the publisher's prices—131 Nassau street—price 12½ cents.

Likeness of Gen. Taylor and his Steed.

Bedford & Co. No. 2 Astor House. have issued a new and most correct likeness of this brave general, with his horse, which they sell at the low price of 12 1-2 cents.

In representing Mr. Avery's semi-circular pump in our last number, the residence of Mr. A. should have read Tunkhannock, Pennsylvania, instead of Massachusetts.

A Yankee captain once sang out in a squall a raw hand newly shipped on board his craft, 'Let go that jib there! let go that jib!' 'I ain't touching it,' said he.

A large iron furnace for smelting is soon to to be established in Jacksontown, N. B. They begin now to talk about developing the resources of New Brunswick.

American Gretna Green.

Some place in Connecticut seems to have started opposition to old Gretna for runaway marriages, although an old blacksmith for priest or squire seems to be wanting to give a romantic zest of drollery to the scene on the one hand and a pistol shot or two, a touch of the sublime, on the other; but for the rest of it, the Worcester Transcript says that some half a dozen of young persons belonging to that town slipped down to Connecticut by the cars on Monday evening, and were there tied in the "noose matrimonial" *jest as eezy* as the boy knew his father. It is said they were very much surprised themselves to find they were "married folks" so soon, and that some other folks were more astonished than they.

Splendid Mirage in Paris.

The Journal des Debats gives the following description of a mirage which occurred in Paris a short time ago. Between seven and eight in the morning the weather being cold and while the sun was rising brilliantly, from the point of the steeple of the Cathedral of Ulm rose a narrow ray of a dark color, almost vertical, with a slight inclination to the west. Near this ray the image of the upper half of the steeple of the cathedral was designed, with its towers and all the numerous and delicate Gothic ornaments which decorated on all sides. This image was so correct that it might have been mistaken for a representation made by the daguerreotype. Eight times this phenomenon was repeated. Such an optical effect is unexampled in the country.

Royal Jewels.

The European correspondent of the Boston Atlas, writing from Dresden, gives the following description of the jewels in the Royal Cabinet of Saxony:

"The old soverigns of Saxony must have possessed Aladin's lamp, to have amassed the rare jewels, carving in precious metals, and costly works of art, accumulated in the cases of the *Grume Gewolbe*, or green vaults. Large goblets composed of agates, chalcedony, and lapis lazuli—vases cut from solid rock crystal—sapphires, pearls, rubies, and diamonds, to the value of many millions, exceed any similar show I have ever seen,

One of the diamonds is a green brilliant, weighing 40 carats, and among the cornelians is a stone on which is cut a cross, set in a ring for Martin Luther. The seal ring of the Reformer is also here, bearing a death's head, around which is the motto, *morisæpa cogila.* The most costly works of art are by Dillinger, the Saqon Benvenuto Cellini, whose maste.-piece represents an Oriental Emperor holding court, surrounded by his guards and nobles, in full costume, to the number of 138 figures, all of pure gold enamelled. This trinket occupied Dillinger eight years, and cost $58,400, at a period when not one Saxon in ten was taught to read. It is said that the diamonds alone in this collection would pay off the heavy national debt with which the country is burdened.

Reflection of Heat.

One of the most curious speculations in natural philosophy is that of concentrating or multiplying the heat of the sun by plain mirrors, or convex lenses. As one plain mirror reflects the heat of the sun, so the reflection of two, three, or more, augment the heat. In this way archimedes burnt the Roman fleet at Syracuse; and Antheonus, an architect at Constantinople, describes the method, as does also Leonard Digges, who wrote on the subject in the reign of Elizabeth, and asserted that he had fired bodies half a mile distant.

Lumber Destroyed.

The injury to the lumber trade by the recent flood in the Wisconsin pineries is heavier than was first anticipated. The loss of property is estimated at $250,000. On the Wisconsin river there are now forty saw-mills, and a new one to run sixty saws is nearly completed.

A palace is building for the Pacha of Egypt at Beycos, on the Asiatic side of the Bosphorus, which is expected to be one of the finest buildings in the Turkish empire. It is to be of the finest stone, but adorned with 150 columns of marble. The cost will be nearly $1,500,000.

FROM MEXICO.

Although rumors have been afloat regarding the real occupation of the City of Mexico by our troops, and a number of papers have issued extras giving a glowing description of their entrance into the imperial city, we are not yet fully confident that our brave fellows are "revelling in the Halls of Montezuma." The reports are too conflicting to be relied on. Although we have no doubt but that our soldiers are in or near the city, yet it is impossible for correct news to have reached here since the period General Scott left Puebla.

Labor Saving Soap.

To make it, take 2 lbs. of sal soda, 2 pounds of yellow bar soap, 2 quarts of water, or in like proportion. Cut the soap in thin slices, and boil together two hours, and then strain through a cloth into a tight box or tub; let it cool and it is fit for use. Do not let it freeze.

To use it: Put the clothes in soak the night before you wash. The next morning put the water into your kettle or boiler. To every two pails of water, add one pound of the soap. As soon as the water with its dissolved soap boils, ring out the clothes from the water in which they had been at soak during the night, and put them in the boiler without any rubbing. Let them boil one hour, then suds and rinse them, and they will be clean and white. They will need no rubbing, except a little on such places as are soiled, and for that no washboard will be required. The clothes should be rinsed in two waters.

The above receipt we have taken from a somewhat scientific paper, and we have only to say, that this trouble of making labor saving soap may all be avoided, just by soaking the clothes in the alkali and using the soap in the common way. They must be rubbed

Disinfection.

The British Government has sent out two gentlemen with a certain description of chemical agent, recently invented by M. Ledoyen, and an English gentleman of scientific attainments, for the purpose of trying how far it may be useful for the purpose for which it is intended, viz: the destruction of the contagious and noxious qualities of the air arising from beds in hospitals and sick rooms, drains, &c. These gentlemen are now on their way to Grosse Isle.

Government Steamer.

A new government steamer called the "Kensington" was to have been launched at Philadelphia on the 9th inst. She sails immediately for the Gulf of Mexico.

A New Regulator.

Uncle Sam's post office stamps are now used as a circulating medium for small remittances by mail.

Mr. J. W. Long, editor of a Southern paper, asks, "When will the editor the Louisville Journal learn to tell the truth?" To which Prentice replies, "There is no doubt but I shall tell it before *Long*."

The extensive mills belonging to Mr. S. Kirk, about two miles from Corydon, Ia., were destroyed by fire lately. Loss about $8000. No. insurance.

The 26 letters of the alphabet make 403 quintillions of combinations; 20 make 2½ quadrillions, and 12 would make 479 millions.

The New York and Buffalo Telegraph Company are putting up a strong iron wire on their line.

The nerve of a tooth, not so large as the finest cambric needle, will sometimes drive a man to distraction.

The second Ocean Steamer the U. States, will be launched on Saturday or Monday.

The Chinese Junk it is said is going to Philadelphia.

There are now seventeen thousand Post Offices in the United States.

In London and Paris the fashionable ladies have returned to the old style of full sleeves.

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THE METEOR.

A Shepherd on the silent moor
Pursued his lone employ,
And by him watch'd at midnight hour,
His lov'd and gentle boy.

The night was still, the sky was clear,
The moon and stars were bright;
And well the youngster lov'd to hear
Of those fair orbs of light.

When, lo! an earth-born meteor's glare
Made stars and planets dim;
In transient splendor through the air
Its glory seem'd to swim.

No more could stars or planets' spell
The stripling's eye enchant,
He only urged his sire to tell,
Of this new visitant.

But ere the shepherd found a tongue,
The meteor's gleam was gone;
And in their glory o'er them hung
The orbs of night alone.

Canst thou the simple lesson read,
My artless muse hath given!
The only lights that safely lead,
Are those that shine from heaven!

Improving Time.

Few seem to be fully aware of the importance of improving time. Yet there are those among the most considerate, who know how to appreciate the value of it. They evince this in their efforts to good, and to be useful in the world. Indeed the conduct of all tends to convince every one of the necessity of improving time, could they fully realize how soon their days on earth would be ended. This idea is often overlooked. This is perhaps one prominent reason why so many permit hours, days, and even weeks to run to waste. If man were created for no other purpose than to spend his time in idleness, it would not be so strange to see people manifesting so little concern about improving the passing moments. But as God has enjoined it upon man to improve the talents committed to his trust, it is astonishing to see multitudes living as though no such duty was imposed upon them. Time should be improved to the best advantage, or but little will be accomplished. Time must be improved, or the cause of truth will suffer great loss. In short any person who neglects making efforts to promote, advance and extend the cause of truth, in literary attainments or otherwise, is guilty of a moral wrong, and may expect to make but little advancement towards happiness in this world, and for this neglect perhaps, may look back with regret in a dying hour, and die degraded as they lived; consequently, unprepared to make that advancement in a spiritual world that they otherwise might have done Therefore, what our hands findeth to do, let us do it with our might.

Illustrious Exemplars.

Industry in humble and laborious occupations has been honored and exalted by the example of the world's greatest benefactors—as may be seen in the following paragraph from the pen of the Rev. T. Spencer.

'In early life David kept his father's sheep, his life was a life of industry; and though foolish men think it degrading to perform any useful labor, yet in the eyes of wise men industry is truly honorable, and the most useful is the happiest. A life of labor is man's natural condition and most favorable to bodily health and mental vigor. Bishop Hall says, Sweat is the destiny of all trades whether of the brow or the mind. God never allowed a man to do nothing.' From the ranks of industry have the world's greatest men been taken. Rome was more than once saved by a man sent for from the plough. Moses had been keeping sheep forty years before he came forth as the deliverer of Israel. Jesus Christ himself, during the early part of his life, worked as a carpenter. His apostles were chosen from amongst the hardy and laborious fishermen. From this we inter that when God has any great work to perform, he selects as his instruments those who by their previous occupation have acquired habits of industry, skill and perseverance; and that in every department of society, they are the most honorable who earn their own living by their own labor.

Application of Heat to Water.

The pressure of the atmosphere effects the boiling of water. At the common pressure of about 15 lbs. to the square inch, water will boil, or attain the vaporific point, at 212 degrees Fahrenheit. If we remove the atmospheric pressure by an air pump, as is done in the boiling of sugar, we can produce the phenomenon of boiling at a much lower temperature. At the summit of Mount Blanc, where the atmospheric pressure is light, water is found to boil at 187 degrees.

Steam produced from boiling water is a transparent, colorless, and invisible substance like air. If we could look into the boiler of a steam-engine, we should see nothing but the water in a state of ebullition. The white cloudy-looking matter which is emitted in the form of vapour, is moisture produced by the partial condensation of the steam in the atmosphere—taking the form of vapor is a step towards becoming liquid again.

A cubic inch of water produces exactly a cubic foot, or 1728 cubic inches, of steam, at 212 degrees of temperature; in other words when water is transformed into steam, it occupies 1728 times its former bulk. In this expanded condition steam is of a less specific gravity than air. Its density is expressed by 0.625, that of air being 1.

The elastic force of steam in the process of heating that is, the force with which it seeks to expand—differs at different temperatures; at first the force is inconsiderable, but it rapidly increases as the temperature is raised. At a temperature of 212 degrees, the elastic force is 15 lbs. on the square inch of the containing vessel, or equal to the external pressure of the atmosphere; at 250 degrees, it is 30 lbs.; at 272 degrees, it is 45 lbs.; at 290 degrees, it is 66 lbs.

Effects of Manufactures upon Population.

Dr. Jessee Chickering has recently issued, through the Boston press, an interesting work, designed to exhibit the increase of the population or Massachusetts and the *changes* which have taken place as to number and population in several parts of the commonwealth.

From this it appears that during the period from 1810 to 1820 inclusive, while the best lands were settled and improved by agriculturalists, the increase of population was comparatively slow.

About the year 1820 the manufacturing interests opened new branches of industry for the surplus population, and in these parts where manufactures were increased the population became more numerous, and the emigration to other states less; while the towns and districts exclusively agricultural have remained stationary.

The British Empire In India.

The Bombay Times gives us some useful hints on India.—The British, or British and East India Company's armies in India, numbering, on the 1st of January, 1847, considerably above 300,000 men, and the yearly amount of military charges for their support is stated to exceed $70,000,000 a year, or more than half the whole public revenue. The public debt of India is four hundred millions of dollars, one fourth of which has been incurred within the last ten years. The gross annual income of India, is estimated at $125,000,000, and the expenditure at $135,000,000. Before the Affghan war, the British armies in India numbered 168,477, exclusive of about 25,000 troops from Britain—British regiments. There are thousands of European officers and their appointments is a source of effective patronage to men in power of England. In a few years, 110,000 men have been added to the East India Company's army, being about as many as the whole British military forces upheld elsewhere. Seven hundred British officers have been appointed to native regiments since 1837 The Bombay Times considers that the forces in India, are courageous and well disciplined, but its facts do not indicate that India is well governed. It is asserted that the reasons why India does not supply England with cotton are, the distance, the want of carriage and the expense, the want of roads for carts, and the want of a great artery like a railway. The growers are too poor to send their cotton to a distance.

Steel of the Ancients.

The steel of the ancients in consequence of not being cemented, suffered itself to be hammered, and was not near so brittle as the hardest with which we are acquainted at present. The Celtiberians in Spain prepared the steel used by them, according to the account of Diodorus and Plutarch, by burying the iron in the earth and leaving it in that state till the greater part was converted into rust. What remained without being oxydised was afterwards forged and made into weapons, and particularly swords, with which they could cut asunder bones, shields and helmets. However improbable this may appear, it is nevertheless the process still used in Japan. The art of hardening steel by immersing suddenly in cold water, is very old. It is also a very ancient opinion that the hardening depends chiefly on the nature of the water; many wells and rivers were therefore in great reputation, so that steel works were often erected near them, though at considerable distance from the mines. Instances of this may be found in Pliny and Justin. The more delicate articles were not quenched in water, but in oil.

How to Preserve Health.

Do not expect sir, some wonderful announcement, some fascinating mystery! No. It is simply the plain little practice of leaving your bed-room window a litte open at the top while sleeping, both in winter and summer. I do not come before you as a theorist or an experienced teacher, in thus calling loudly upon every family to adopt this healthful practice. I am the father of ten children, all in pure health, and thank God never lost one, although their natural constitutions were not robust. But in addition to the salutary effect of the practice in my family, wherever I have advised others to try its effects, it has invariably been found to be both pleasant and beneficial.—*Robinson.*

Monstrous Regiment of Women.

A letter dated 1st May, Cape Coast Castle, Africa says:—Captain Winniett, the governor, has returned from a visit to King Dahomy, having succeeded in entering into treaties far beyond his expectations. King Dahomy has written a letter to her Majesty the Queen of England, and intends sending her presents, thereby showing his amicable intention in his negociations with this country. King Dahomy's household troops consists of 10,080 women magnificently equipped and many in armour. Captain Winniett was received by upwards of 20,000 troops, and Dr. Ridgway, who accompanied Captain Winniett on his visit, kept a comprehensive journal, which he has sent to England for publication.

Remarkable presence of Mind.

A workman employed in one of the mining shafts of the Scottish Central Railway, lately had a most miraculous escape. He had lighted the fuses connected with the charges of powder for the the purpose of blasting, and gave the signal to be drawn up, but the rope slipping, the poor fellow was suspended a few feet above where the explosion was to take place, with no other prospect before him but instant death. With great fortitude and presence of mind, he called out to lower him, which was immediately done, and advancing cautiously to the burning fuses he extinguished them. On examination, they were found to have burned within half an inch of the powder.

New Tricks.

Some thieves in Paris dress as servants, and visit the different tradesman, requesting certain accounts; they then dress as tradesman, take the accounts to the parties, receive the money and bolt.

A clever thief, named Chamescot, was brought up before the Correctional Police of Paris, charged with stealing four five franc pieces. He hustled a man, who had money in his hands, and contrived to get possession of the several pieces by treading on them, after having covered the soles of his shoes with cobbler's wax.

Dr. Gregory, of Edinburgh, in visiting the poor, used often to begin his prescription by breaking a pane or two of the window with his walking stick, which he made good again at the end of the illness.

Female Sculptor.

Propertia de Rossi, a female of Bologna of obscure birth, handled the chisel as a professional artist for emolument, and was extremely successful in her eforts. She united the delicacy of Praciteles with the truth of Puget. In the pontificate of Clement VII. she made several statues for the facade of San Petronio at Bologna. She was also a good painter, and an excellent engraver. Propertia became enamored of a young artist, who did not make a suitable return to her love. This disappointment threw her into a lingering disorder, which brought her to her grave. Her last work was a basso-relievo, representing the history of Joseph, and Portiphar's wife Her cruel lover was represented as Joseph; herself as the Egyptian Queen. It was alleged to have been her best work, and may be truly said to have been executed.

The Vampire Bat of Brazil.

There is one enemy which sometimes approaches even a hammock and take a tribute from the unconscious sleeper; this is the 'Vampire Bat.' During the day they sleep in the tiles of the roof, but they go forth at sunset. Some of the largest measure upwards of two feet across the wings, but generally they are smaller. Of their fondness for human blood, and especially that particular portion that constitutes the *animus* of the great toe. If the foot is covered there is no danger, or if a light is kept burning in the room; and often we have slept unharmed thus guarded, when bats were flitting about and squeak the night long. Cattle and horses are not so easily protected; and a wound once made, the bat returns to it every night, until the proper precautions are taken, or the animal is killed by the loss of blood.

Female Form.

"In form, the Italian excel us. Larger and fuller, they naturally acquire a finer gait and bearing. It is astonishing that our ladies should persist in that ridiculous notion that a small waist is, and *per necesscita*, must be beautiful. Why, many an Italian lady would cry with vexation, if she possessed such a waist as some of our ladies acquire only by a long and most painful process. I have sought the reason for this difference. and can see no other, ouly that the Italians have their glorious statuary continually before them as models, and hence endeavor to assimilate to them; whereas our fashionables have no models, except those French stuffed figures in the windows of miliner shops. Why, if artist should presume to make a statue, with the shape that seems to be regarded with us as the perfection of harmonious proportion, he would be laughed out of the city. It is a standing objection against the taste of our women, that they will practically assert that a French milliner, understands how they should be made better than nature herself."—*J. T. Headly.*

Good Farming.

Here is the secret of good farming. You cannot take from the land more than you restore to it, in some shape or other, without ruining it, and so destroying your capital. Different soils may require different modes of treatment and cropping, but in every variety of soil these are the golden rules to attend to:—Drain until you find that the water that falls from heaven does not stagnate in the soil; but runs through it and off it freely. Turn up and till the land until your foot sinks into a loose powdery loam, that the sun and air readily pass through. Let no weed occupy the place where a useful plant could possibly grow. Collect every particle of manure that you can, whether liquid or solid. Let nothing on the farm go to waste. Put in your crops in that course which experience has shown to lead to success in their growth, and to an enrichment and not impoverishment of the land. Give every plant room to spread its roots in soil, and leaves in the air.

John Steeprock's Five Mile Race.

We learn from the Batavia Times of Tuesday, that the "fat" Indian, John Steeprock, ran a five mile race in that village on Tuesday last. The time limited for the five miles was thirty minutes. The track chosen was half a mile in length. Steeprock performed the distance in 20 minutes and 31 seconds.

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NEW INVENTIONS.

Montgomery's Patent Steam Boiler.

Mr. James Montgomery, of Memphis, Tennessee, has invented and patented a new steam boiler, with very excellent qualities. Professor Renwick and Mr. Wm. Burdon, of Brooklyn, steam engine manufacturer, highly recommend it. The opinion of the practical man is always the most valuable. This boiler is said to possess the following advantages over others :—

1st. It requires less water in the boiler.

2d. Prevention of explosion.

3d. Saving of one-third in fuel.

4th. The saving of one-half the space usually occupied by the best class of locomotive boilers.

One of these boilers is used in this city by Hooper & Brothers, 333 Pearl street, and the mechanic who has charge of it pronounces it to be a "grand boiler." We have seen it and can say that we have never seen a boiler occupying so small a space, doing so much work. We have, on the contrary, seen boilers double its dimensions required to produce an equal amount of steam.

Metallic Carriage Shaft.

Mr. E. H. Ashcroft, of Boston, has made the shafts of a carriage from suitable wrought iron tubes. They are far superior to wood, neater and more durable, and they can be japanned and look exceedingly beautiful. It is a great improvement. Mr. Ashcroft has taken the necessary measures to secure a patent for his invention.

New Calculator.

Mr. W. M. Haines, of Rochester, N. Y. has invented a machine which can add and subtract columns of figures from units to billions, with the utmost accuracy. In the addition of decimals it is very valuable, for with a very limited practice a child can be made to work problems that would be very troublesome for any person to resolve. The model is a very neat machine capable of working four columns of figures. Mr. Haines has taken measures to secure a patent.

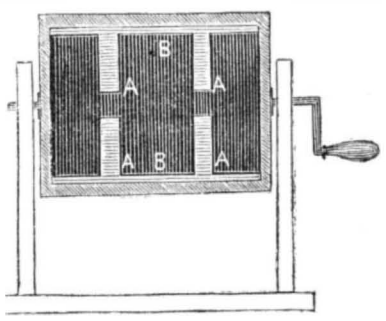
Glue made Waterproof.

A mechanic in Albany has just made an experiment which promises to be of much advantage by making glue perfectly waterproof, and having the property of drying immediately after its application. His method, we learn, is first to immerse common glue in cold water until it becomes perfectly soft, but yet retaining its original form ; after which, it is to be dissolved in common raw linseed oil, assisted by a gentle heat, until it becomes entirely taken up by the latter, after which it may be applied to substances for adhesion to each other, in the way common glue is applied. It dries almost immediately, and water will exert no action upon it. It is unnecessary to say for how many valuable purposes in the arts this application may be used. For cabinet makers it is important, as mahogany veneers, when glued by this substance, will never fall off by exposure to the atmosphere. In ship building it will probably answer a valuable purpose, as it has infinitely more tenacity than common glue, and becomes impervious to water.

Planeing Machine.

T. J. Wells of this city is the inventor of the Planeing Machine for which patents have been secured some time ago. It consists in an improved mode of adjusting the plane irons. "The method of fastening plane-bits or irons to their stocks (now generally in use) is by means of a wedge, which requires hammering to drive it in or draw it out, which in a short time injures ths stock and disadjusts the set of the cutting edge. Various other devices have been suggested and and essayed to avoid this difficulty, but they have so far all failed, either in consequence of complexity and cost, or the occupying of too much room in the throat of the plane, and therefore impeding the discharge of shaving. But by this improvement all these difficulties are avoided. It consists in the employment of an eccentric metallic roller, which has its bearings in the sides of the throat of the stock and is situated immediately over the bit or iron ; so that by turning it the bit is either liberated or fastened. Its diameter is so small as not to afford the least obstruction to the free discharge of the shavings ; and by the turning of this eccentric to fasten the bit, if it be turned in the direction of the cutting edge, it will tend to set for the cutting of a thicker shaving, and by turning it the other way the reverse effect will be produced."

Simple Revolving Churn.



There are many modes of churning milk, and as butter is an article not only of food,—necessary food,—but is absolutely a very fine and healthy agricultural product, so every farmer great and small must have his Dairy—his milk sweet from the cow and his butter sweet from the churn. These are luxuries which the farmer enjoys and which nothing in all the city's pomp can rival. Every man who leaves the city for the quiet rural life of the farmer, must have his sweet butter, and that with ease and simplicity, if he takes our advice and make a churn like the one represented in the above engraving, invented by Mr. C. M. Pease, Monson, Mass. It is simply a hollow revolving wooden cylinder, A A, B B, driven by a crank which spins round on a frame set into it, on which there are four spokes which agitate the milk in such a manner as to make butter in a very speedy, easy and economical manner. Any farmer with a yankee mechanical genius can, not only be his own butter maker, but his own churn maker after this fashion.

Meat and Fruit Preserver.

A gentleman in Baltimore, named Peter Kepheart, has invented a Meat Safe of a peculiar kind, which promises to be one of the most important, because useful inventions, of the present day. It consists of a chamber, so cut off from the influence of heat as always to be at a uniform temperature, a degree or so above the freezing point. The ice, which is the preservative power, is replenished but once a year, and the fruit chamber is so constructed that no heat can find its way into it The temperature is so low that the rotting, as well as the over-ripening of fruits is prevented, and there is not, at the same time, the least danger of their being frozen, or of undergoing any fermentation. There is not the least moisture in the chamber, as all is carried off and made to serve the important purpose of absorbing the heat from the circumjacent air or ground. The ice being deposited on the roof of the chamber causes its upper air to be somewhat colder than on the lower floor, on which articles to be preserved are deposited, and therefore moisture cannot be condensed on them.

The theory that cold was a preserver, if the temperature was kept dry and even, has long been maintained, but this invention has been for the first time practically tested as to its correctness. In it apples of last fall's growth retain all their original freshness, flavor, and juices, just as pulled from the tree.—Oranges, pineapples, lemons, and other exotic fruits have been placed there for months, and are yet untouched by the least symptom of decay. There may be seen boquets of flowers, retaining all their scent as when taken from their parent stem. Butter and eggs are also saved from decay. In fact, there is hardly a perishable article which has not been experimented on with perfect success.

The advantages of this invention must be self-evident. Any one possessed of a moderate sized vineyard or orchard, would find that the large amount of fruit which is annually lost, either from want of a market or over supply, and other causes, can be thus preserved until the articles are out of season. Persons engaged in the Bacon Commission business, can secure their meats from the inevitable effects of warm weather.

Plumbers' Irons.

It is well known that the common soldering iron is sometimes very injurious to the sinews of the hand, and in some instances from its great heat, the use of the hand has been entirely lost. Here is a plan to obviate this difficulty by substituting glass for wood.

FIG. 1.

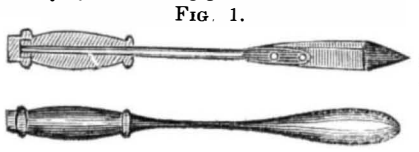


FIG. 2.

Fig 1, is a copper bit of the ordinary construction, showing the application of a glass handle (seen in section,) and containing within it an iron nut, firmly imbedded by the aid of Plaster of Paris or some other suitable cement. The nut takes on to a screw at the termination of the rod, so as to make all firm.

Fig. 2, is a hatchet-bit for coppersmiths, &c. shewing the application of a glass handle in a similar way ; and exhibits the like improvement applied to a common soldering iron for plumbers, &c.

Veneering Machine

A superior veneering machine has been invented and patented by A Mac Burth, of this city, the nature of which consists in interposing between the veneers, or veneer and body to which it is to be attached or united, or layers of wood to be united, a cotton or linen canvass, or other cloth, (the cloth and parts of the wood to be adjoined being first covered or prepared with glue or other adhesive material,) and then placing the parts to be united in juxtaposition ; the cloths prepared as aforesaid being interposed, and uniting them by any of the known or suitable modes of compression. The cloth thus interposed adheres firmly to every part of the adjacent wood, and prevents the veneer from splitting or cracking with the grain of the wood, or leaving the body to which it is attached ; renders two veneers minutely thin, thus united, stronger and more durable than if united in the usual mode, and than solid wood of many times its thickness or size.

This invention is peculiarly adapted to the veneering of formation of unequal surfaces, or to cases where the veneering wood is required to be bent or compressed out of its natural inclination. It is especially adapted to the construction of wooden tubes or pipes. The mode adopted in the constructing of tubes or pipes is the following: A veneer or layer of wood is first rolled around a rod or shaft attached to a crank, and turning with it and compressed by a cord, or other compression, into the required shape. The cloth, saturated with glue or other adhesive substance, is then rolled tightly around the veneer thus shaped as above, and then another veneer, or layer of wood, is applied upon the cloth and compressed, by the means above stated, into contact with every part of the cloth; by turning upon which, the veneers are shaped or rolled over a furnace, and the glue or adhesive matter is made to penetrate every part of the fabric."

Discovery in Magnetism.

The phenomena in magnetism have been attracting the attention of scientific men for a long time past, and it appears from investigations as if we were advancing to a knowledge of many of the most secret operations of nature. A very interesting discovery has recently been made by placing a glass trough on the poles of a powerful magnet and filling it with a fluid from which a precipitate is slowly forming, when it is found that the precipitate arranges itself in the magnetic curves. Crystalization taking place under the same circumstances, exhibits also the influence of magnetism on their molecular arrangements —all the crystals tending and arranging themselves in the order of the magnetic curves.—The experiment is very beautifully shown by filling the trough with a solution of the nitrate of silver and placing a globule of mercury on the glass equi-distant from the poles of the magnet, when the revived silver shoots out in all directions in a very beautiful arborescent form, but it maintains in a striking manner the curvilinear tendency and distinctly marks out the lines of magnetic direction. From results already obtained it would appear that this influence is universal.

Great Invention.

It is reported somewhere up the river that a gentleman has invented an article he calls the Skirt Expander, for which he is about to procure a patent.—The inventor says it will entirely do away with the common cotton bustle. It is said to be principally made of India-rubber, air-tight, and is capable of being inflated or nontracted at any time. If a lady should be walking and wish to appear larger, or smaller, the Skirt is so constructed that she may enlarge or diminish her apparent size at pleasure; and yet a person may be walking with her and not discover how, or by what means her apparent size is diminished or increased. The inventor, also, says that the appearance of a lady, with one of these Skirts, is much improved, the dress setting much better and easier: and that it will save the labor of carrying about the streets quite a small bale of cotton and from eight to twelve skirts.

Razor Strops.

A correspondent says he has tried with great satisfaction to himself, the following improvement on his razor strop : He uses, on two of the four sides, blacklead, and on the other two sides a powder made by gently rubbing two Turkey stones against each other, which produce a beautiful powder, defying in quality any and all of the powders used on strops, and requiring only to be renewed once in a year.

Patent Safety Tubes for Life Boats.

Mr. Holdsworth, of Dartmouth, England, has invented life buoys or tubes of vulcanised India rubber, which have been thoroughly tested, we learn, by nautical men in England, and pronounced to be perfectly successful, converting by their use, any boat into a life boat.

The tubes are about two yards in length and eight inches in diameter, each having a brass valve at one end for inflation, either by the mouth or a pair of bellows, and with a screw tap to prevent the escapement of air. Several of these were lashed longitudinally along the interior sides of the boat, under the seats of the boat. The boat was perforated with four holes in her bottom, and two on each side above the water line, for the purpose of filling her, and as a temporary expedient, these were provided with cork bungs or plugs, so as to be closed when required. In a boat regularly constructed for an occasional lifeboat on this principle, lateral valves are made to act with readiness and effect. Four men, with two oars, were on board of the boat used, which, though they had on board 500 lbs. of iron in weights of 56 lbs it required some time to put her down so as to be waterlogged. She was at length almost wholly submerged, yet maintained her upright position with 3 of the men standing on her bottom. On being lightened of several of the weights, which were proportionately too much for the comparatively small amount of buoyancy in the few tubes, she rose considerably, and freed herself of much of the water through the side valves under the gunnel. The operation was successful, and would have been more so had she been in a tossing sea-way, in which case she would have discharged the water more freely by her undulating motion or lift, than in dead water. The principle is not assumed to be new, but it is claimed as a new adaptation, undoubtedly practicable, and may be the means of saving life on emergencies. The tubes are flexible, may be rolled up in a small compass, and stowed away when not in use. One great advantage is, that the tubes are as strong as thick leather, and are not as liable to injury by any thing short of a cut or perforation ; and even if a hole be made in one of them, there are curious plugs or rivets of the same material that can easily be buttoned into the hole so as immediately to render it tight. The material is 16 per cent lighter than water of the same bulk, and the cost of the whole apparatus for a boat of considerable size is comparatively small.

Cotton in England.

Mr. McQueen stated in evidence before a committee of the House of Commons last month, that in the course of the last 25 years, England has paid, for cotton alone, to the United States, £368,000,000 sterling, or $1,-300,000,000.

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NEW YORK, AUGUST 14, 1847.

Relationship of Science.

In our last number we showed how we were dependent on the elements that surround us for food, water and clothing, and how that in the one case, the utmost exertions of body and mind were necessary to bring from the elements around us, those things that sustain life The experience of every age has classified facts or phenomena, and by such we are enabled to tell if such phenomena would occur again by certain processes. Science, then, must be interesting to all; for example, to know how sea weeds are turned into glass—fragrant hartshorn made from putrid matter, or earthy matter made into metals, and how these are used to make machinery to clothe us, and houses to shelter us. Science is the result of labor, and therefore we may well say that to the workingman are we indebted for those successful experiments, which building one above another, present a beautiful and interesting and useful structure.

Nature indeed is the cause of many changes that affect us, but the operations of Art surely interest us most. These are of two kinds, relative to visible motion, what we are especially treating, viz. mechanical philosophy and chemistry. These are distinct and different. When a stone is raised by a lever, or pulley, or a piece of wood split with an axe, the nature of the substance remains the same, its position or shape is only altered.—These are mechanical actions. But when wood is exposed to heat and converted into charcoal, tar, vinegar, &c., the change is a chemical one. These two distinct changes relate to two different sciences which are closely related to us but widely different in themselves. The one treats of form, shape and magnitude, the other of the nature and composition—the property of materials. We have shown before how nearly we are related to science, but we have not directed attention to the manner of classifying facts, and to carry out our sincere and always prominent desire, *a spread of true knowledge*, we would say let none plead ignorance of a way to acquire it If we take up a wooden ball, we can direct attention to the intricate mechanical art of turning, &c. and read read of the same and its relations in the article we have published,—"Mechanical Manipulation." If we take up a piece of charcoal we may inquire into its uses and the causes which changed it from wood to a hard ringing substance, and in the enquiry we will be led to consider the operation of gas making and a number of other phenomena. By this mode of procedure any person by very simple means, can lay past a great amount of useful information; yes, can build up and arrange a system of facts, experiments, and master any science. In this mode of study too, the pursuit of knowledge becomes a part of our existence and we become united by the ties of a near relationship.

Steamboat Fare.

The laudable competition in steamboat travel on the western lakes, forms a striking contrast with that of the English steamers. The voyage across the Atlantic is about 3,000 miles, and that from Buffalo to Chicago, as we travel it, near 1,000. The price of cabin passage across the Atlantic, that now occupies about twelve days, is $150, while on this route, that occupies four days, is only $10, and the fare is equal to the best hotel in the Union.—Let us see—four days at a good hotel, at $2 per day, is $8, leaving a balance of $2 for a voyage of a thousand miles through a region that would give a dying man an appetite for meat and drink.

Copper Ore.

Examinations are making in Prince William Co., Va., for copper, and that the progress thus far have been favorable. 2500 lbs. of ore, from an excavation near Brentsville, were brought to town yesterday, to be shipped to Boston, and proof of its quality.

Cast-Iron Rail Road Bridges.

A short time ago a great sensation was produced in England by the fall of a rail road bridge over the river Dee From the nature of the accident many opinions have been expressed. The following opinions of a "Practical Man," are well worthy attention on both sides of the Atlantic:—

"Cast iron is a remarkably hard and rigid substance, but exceedingly brittle. and though it will bear an enormous pressure, gradually applied, without fracturing, it will break under a comparatively trifling blow. Now, when a cast-iron girder is used to carry the wall of a building placed above it, the weight is gradually laid upon the girer, and when finished, it is subject to no particular variation, and the girder supports its burden firmly and securely. But when a cast-iron girder is applied to carry a heavy train across a bridge, the weight it has to bear is very suddenly (and with express trains almost instantaneously) thrown upon the girder, and as suddenly removed, and hence it assumes, according to all intents and purposes, the character of a blow, and the girder is subjected to a strain which it is quite unfitted to bear. Rolled-iron rails are invariably made use of, because it is a well established fact that cast-iron rails would fracture under the rapid speed of a train, and yet cast-iron is recklessly employed in the form of girders, which are only rails of a much larger kind. I am in the constant habit of seeing iron girders tested in the usual manner by the hydraulic press, but this ordeal does not prove their fitness for railway purposes, because the power of the press is very gradually applied and as gradually relaxed. I saw a practical proof of this a few days ago; a large cast-iron girder had an accidental fall, and it immediately broke into three pieces.—I could multiply this assertion by many similar practical proofs. but I will only add that it is my firm conviction—a conviction strengthened both by theory and practice—that a cast-iron girder ought never to be trusted to bear a vast weight suddenly placed upon it and as suddenly removed; and, therefore, cast-iron girders should never be used for the means of railway transit, as in every case they are subjected to a strain which, from their very nature, they are unable to bear."

Hours of Labor.

Below we publish the act recently passed by the New Hampshire Legislature, regulating the hours of labor. It will be seen that all the act does is to establish 10 hours as a legal day's work. Indviduals can contract to work 12 or 14 hours, or night and day if they please. The law applies to all labor in the field as well as factory. It discriminates with regard to labor by minors, and makes it penal to employ them in factories more than 10 hours per day, without the consent of their parents or guardians. It is entitled

"An act for regulating the hours of labor in manufactories. *Be it enacted* by the Senate and House of Representatives in General Court convened.

SECTION 1. In all contracts for or relating to labor *ten hours* of actual labor shall be a day's work, unless otherwise agreed to by the parties; and no person shall be required or holden to perform more than ten hours labor in any one day, except in pursuance of an express contract requiring a greater time.

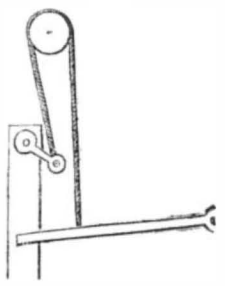
SEC. 2. No minor under the age of fifteen years shall be employed in any manufacturing establishment more than ten hours the day, in any labor, without the written consent of the parent or guardian of such minor first obtained. If any manufacturer, or any corporation, or the agent of any manufacturer or corporation shall employ any such minor in violation of the provisions of this section, he or they shall be punished by a fine not exceeding one hundred dollars. Approved July 3, 1847."

Yankees Everywhere.

The commander of a Russian exploring expedition in the Antarctic ocean, discovered or imagined he had discovered, an island previously unknown. He was proceeding to take possession of it in the name of the czar, when a snug little schooner came standing out towards him, and inquired, "Do you want a pilot?" The captain was a genuine yankee from Connecticut.

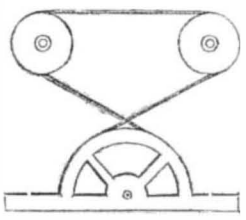
MECHANICAL MOVEMENTS.

Circular and Rectilinear Motion.



We have already presented a great number of combinations of machinery simple in themselves, but not the less beautiful. The simple forms of communicating motion by means of a crank is well known to all and the combinations resulting from this by other mechanical instruments to communicate other motions are numerous. Here is represented a shaft connected with a crank by a rope passing over a pulley, and the inference at first sight is that by this movement rectilinear motion will be communicated to the shaft. This motion is partially applied as represented to the Clauseen Loom, only there are double pulleys connecting the treads and heddles.

Transmission of Power.



Various methods are and have been used for the spread of power from the first mover, over a number of surfaces—in other words, to communicate the whole of the prime power in portions to drive a number of machines.—Such as a single water wheel driving all the various kinds of machinery in a woolen factory. The most common plans of transmitting power, are bevel gearing, the pinion and the belt. In the above cut we have an example of the transmission of power from a large wheel which is but partially seen to two smaller wheels, by means of a belt. The power communicated is to each shaft on the small wheels, one half the whole power, but a double speed from that of the large wheel, as the small wheels are but half the size of the large one Each small wheel performs two revolutions while the large wheel performs one.

New England Slavery and New England Newspapers.

Whatever may be said regarding the corruption of the Press in various parts of the country, this much at least can be said of our Eastern papers, *they fear not to tell the truth*, they do not cover up iniquity. There is an honest, open and sometimes a fierce independence exhibited. The Boston Atheneum gives publicity to the following institution upon which we cannot comment, because we are not fully acquainted with all the minutia relative to its necessity or origin, or vice versa.

"A portion of our readers will doubtless be surprised to learn that slavery now exists in New England, and that men and women are sold or leased at public auction. Such is the fact. The persons who are thus barbarously treated, are guilty of the dreadful crime of *poverty*, and because they are unable to take care of themselves, and the town in which they live has no accommodation, they are sold to individuals. The purchasers are obliged to feed and clothe these wicked paupers at the price agreed upon, which is paid by the town. and are at liberty to get as much labor out of them as they can.

"Able-bodied men have stood by these sales and seen their own relatives sold into slavery—their cousins, uncles and aunts, and even parents!"

Sad Accident.

A large limestone rolled from the top of a hill in the vicinity of Pittsburgh, on Monday afternoon. In its descent it rushed against a frame school house and instantly killed five children besides wounding three others, one of whom it is feared may not recover

The revenue collected at Tampico during the last two months, reaches $70,000.

The Western Trade.

MILWAUKIE.

The arrivals and clearances at the port of Milwaukie from April 12 to July 1, 1847, and the number of barrels bulk of passengers' goods, and number of tons of merchandise landed, were as follows:

Steamboats propellors, brigs and schrs.	33
No. of passengers, : ; :	10,890
No. of barrels bulk of passenger's goods, : : : :	21,476
No. of tons merchandise, : :	2,786

CHICAGO.

In 1839, the first cargo of wheat was shipped from Chicago The following shows the increase from that time:

	Wheat.	*Flour.*	*Beef and Pork.*	*Wool, pounds.*
1842	586,207	2,920	16,209	1,500
1843	628,967	10,876	21,492	22,052
1844	891,894	6,320	14,838	96,636
1845	956,850	15,753	13,269	216,610
1846	1,459,590	23,945	31,269	281,225

WELLAND CANAL.

During the month of June there passed through Lock No. 4 of the Welland Canal, 376 vessels—188 down and a like number up—of which 126 were from and 118 to Oswego, and 42 from and 42 to Kingston. 184 scows and 104 rafts also passed through.

Cotton Thread.

Very few of the thousands of our countrywomen who are in the daily and constant habit of using the needle, are probably aware, that they are indebted for the invention of that important article of domestic manufacture, cotton thread, to one of their own sex—the wife of the patriarch of American manufacturers, Samuel Slater. A writer in the Woonsocket Patriot, states that in 1794, while spinning a quantity of sea island cotton, the evenness and beauty of the yarn attracted the attention of Mrs Slater, and the question arose whether if doubled or twisted, it would not make good sewing thread. The experiment was tried, and in order to be fully satisfied with the result, a sheet was made, one-half with linen, and the other half with cotton thread, and immediately put in use. The cotton wore the best, and the linen was the first that was rent. From this period Mr. Slater commenced the manufacture of cotton thread, and it soon spread into England, France, and all other European Countries, where it is generally supposed to be of English origin—though the credit of the invention belongs almost entirely to an American matron.

Railroad Bridge.

A Railroad Bridge over the Housaonic is to be a very handsome and imposing structure. It will cross the river about 100 rods above the Washington Bridge. In length it is to be 1079 feet and the elevation above low tide, we believe, is 29 feet. It will have a turn table draw, giving an opening of 60 feet in width on one side side of the pier and some 40 feet on the other. This will be sufficient for all the purposes of navigation. About forty men are now at work in laying the foundation of the piers, &c.

New York State produces annually about 30,000,000 bushels of potatoes. Maine produces about 12,000,000 bushels.

To New Subscribers.

Those subscribing to the Scientific American will be furnished, if desired, with all the back numbers of the present volume. Bound together at the end of the year, they will form a handsome and valuable work.

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FOREIGN MISCELLANY.

[Compiled from Foreign Journals received at the Scientific American Office.]

Enormous Railroad Receipts.

We give below a list of a few of the most productive railroads in England, with the receipts of each for the 6 months, ending June 30th, 1847.

Railroads.	*Receipts for 6 months.*
London and North Western, :	£1.044,425
Great Western, : : : :	491,115
London and Brighton and South Coast	183,937
London and South Western, :	194,253
Manchester and Leeds, : :	215,583
Midland, : : : : :	414,911
South Eastern, : : : :	196,473
York and North Midland, : :	156,050
York and Newcastle, : : :	207,029
Edinburgh and Glasgow, : :	90,963

Astronomical.

In the astronomical line there are a few items, viz. The discovery by Mr. Hencke, of Altona, of a *new Planet*, which has since been seen from the Observatory in Regent's Park, London. It is a star of the ninth magnitude and lies nearly midway between Zeta and Ophiuchi, and has an orbit very similar to Juno. It has an hourly motion of about two seconds of time in right ascension and of about ten seconds in declination and can be found on a fine evening without much difficulty. Its approximate place on the 30th July, at 11 o'clock at night, was put down at right ascension 16 55' 27" ; south declination 7 15' 22."

A satelite the new planet Neptune, has also been discovered. And Bombay papers mention that this planet (Neptune,) has been seen at Poonah, distinctly visible in a common night glass. appearing as a star of the ninth magnitude.

The comet of 1264 and 1566 is expected soon to make its appearance, and the astronomers in their searches after it, have discovered a new comet near the Pole.

Discoveries in Central Africa.

A Liverpool merchant and a sea captain, have succeeded in penetrating the interior of Africa by the River Niger, which river and its branches pass through, it is found, an immense delta, containing thousands of miles of richly fertile and wooded country, and with iron steamers of small draft and great engine power, not only the Niger, but its principal branch, may be navigated at all seasons of the year. The unhealthy climate is found to extend but a little way inwards, and as the river was ascended the healthiness became equal to the tropics generally. Ivory, vegetable tallow, pepper, indigo, cotton wool, palm oil, dyewoods, skins, and a great variety of produce but slightly known as yet, invite the trader. The highest point of the Niger reached by the enterprising voyagers was within 40 miles of the lowest point reached by Park, who it will be remembered went from the other side of Africa through Abyssinia and down the Niger to Boussa, so that only 40 miles of the river remain unsurveyed. This is truly a successful private enterprise.

Telegraph, Railroads, Ether, &c.

An electric telegraph has been fixed in the House of Commons for the purpose of transmitting communications between the lobby and the committee rooms. Members attending committees are thus enabled to learn instantaneously who is speaking in the House, and at what time a division may be expected.

One hundred and thirty six railway bills have received the royal assent at the present session of Parliament, authorising £25,865,891 ($129,400,000,) to be raised by capital and loan for the construction of 1,145 miles of railway. During this session the mere expense of railway bills in parliament have been estimated at half a million pounds sterling, and during the last sessions at three millions! This is lobbying to some purpose.

A novel first class railway carriage is to be constructed expressly for through trains between Scotland and England. The body of the carriage will be of the usual size, divided into two apartments, the one larger than the other. Both divisions will be fitted up with cushions, pillows, and everything suitable for laying down at full length. The larger division will accommodate six persons ; the smaller one, communicating with the other, is intended for ladies, and will afford room for two. In this latter division there will be all those conveniences which ladies and invalids will appreciate.

A useful label for passengers' luggage has been invented by a Mr. Hope. These labels are printed with each a different number, and on a diversity of striking patterns, all dissimilar, and passengers may readily fix them on packages, so that they may be easily recognised, and no mistakes occur.

By a decree of the government of Hesse Darmstadt, dentists and midwives are forbidden to use the vapor of ether in their practice, under heavy penalty.

It has been found by experiment that sensitive plants are as susceptible of the influence of ether as animals. By subjection to the vapor of a small quantity of ether they lose their irritability, which they do not recover for some time.

A French surgeon asserts, that by exposing men and animals to a galvanic current from Clarke's magneto-electro apparatus, he has succeeded in rendering them as insensible to pain as if they had inhaled sulphuric ether.

Artificial Water Power.

An Italian Engineer has received the verdict of the Paris Academy for a water mill of from five to fifty horse power, worked by an artificial water-fall, and which can be placed up as a motive power in any manufactory, occupying a small space, requiring little labor, and of course producing vast economy as compared with the steam engine, as it requires no combustable.

It consists of eight pumps, worked with great ease by a single man, (it is said that two men would suffice for an eight horse power machine,) by means of an admirably disposed counterbalance system. The pumps supply a reservoir placed at a proper height above the water-wheel, as in the case of a nature fall, and the water falling upon the wheel to which the strap for the machinery of the manufactory is affixed, the whole goes round and puts the machinery in motion. The paradox of this invention is the return of the water to the fountain head in such a way as to keep up a continuous fall.

Items.

A writer in the Railway Magazine suggests the idea of using india rubber fenders on ships while lying at the wharf. An idea worthy the consideration of ship-owners everywhere.

A patent has been granted to a man in Belgium for a method of increasing the quantity of cream procured from milk !

The marine glue, for caulking ships, is found to be an effectual substitute for pitch, especially under the influence of a strong sun. A saving too, of £20,000 a year is anticipated from its use.

The Commissioners of the Northern Lighthouses of England have purchased several tons weight of lenses of French manufacture, for the use of the lighthouses under their management.

It is announced that the Emperor of Russia has determined to construct forthwith a vast line of railroads, to connect the three capitals of St. Petersburg, Moscow and Warsaw.

Father Maces, Professor of Natural Philosophy at Nemours, has succeeded in "transforming the solar light into electricity." The Professor is now engaged in preparing for publication his theory of electricity which has led to this discovery.

The electric current, according to the calculation made by Professor Wheatstone two or three years ago, travels, as near as can be estimated, at the rate of 288,000 miles per second, or, if we multiply the large number by sixty, 17,280,000 miles per minute.

The journey from London to Southampton, a distance of 78 miles, is now daily performed on the South-Western Railway, in the space of 105 minutes, so that the average rate of speed including stoppages, is a mile in 1.3 minute.

The consumption of caoutchouc (India-rubber) has prodigiously increased, as shown by the fact, that, in 1823, the quantity of that article exported from Brazil did not exceed 20,000 pounds, whilst that of 1845-'6 amounted to 800,000 pounds, besides 415,000 pairs of shoes.

The yearly amount of insolvency in England is no less than £50,000,000.

A Mechanics' Institute has been founded recently at Constantinople by the English resident mechanics, in which lectures are to be delivered on the mechanic arts not only in English, but in Armenian and Turkish. Several Armenians and a few Turks have become members.

A wholesale emigration was carried on from Liverpool in the three months ending June 30th. In that time 141 passenger ships cleared for the United States with 32,258 emigrants and 53 ships for Canada with 23,267, making with children under twelve years of age, which are not counted, and those under fourteen which are counted two for one, an aggregate of 100,000 !

At a late meeting of a London Antiquarian Society, one of the members produced, for general inspection, the heel bone of Edward VI., pilfered from his coffin.

The highest honors at King Edward's School, Birmingham, have this year been gained by a Jewish scholar.

The London Times charges 8 shillings sterling for announcing a death, and averages nearly one hundred such notices per day.

The Countess of Mornington, the wife of a nephew of the Duke of Wellington, has advertised in the London papers for assistance, to prevent her going to the parish workhouse as *a pauper !*

As the present mode of *branding* deserters has been found inefficient, the Duke of Wellington has given orders that the operation shall be henceforth performed with needles and gunpowder, so as to make the letter "D" indelible.

The parish clerk of Winkleigh has a salary of a guinea a year for winding up the church clock daily. To earn this sum he has to travel 108 miles, ascend and descend 29,000 steps and haul up eighteen tons weight 26,000 yards. Verily *this* is not an ecclesiastical sinebure.

A vessel had arrived at London with an entire cargo, 300 tons, of granite from the west coast of Africa !

"Durkee's Green Mountain Vegetable Ointment, prepared from a vegetable *peculiar* to the Green mountains of Vermont," a nostrum which the *green* proprietor has considered his bounden *duty* to introduce to the use of the inhabitants of Great Britain ; a "national desideratum" in the shape of "rat and mouse destroying *pills* ;" and a "novel" medicine for coughs, professing to be a "Pectoral Syrup of Calves' Lights," are advertised, the two former in a London, and the latter in a Paris paper.

What Temperance can do.

In Mrs. Hall's book on Ireland, occurs the following passage, which a person will hardly read without emotion :—

"We entered one day a cottage on the suburbs of Cork ; a young woman was knitting stockings at the door. It was as neat and comfortable as any in the most prosperous district of England.—we tell her brief story in her own words as nearly as we can recollect them :—'My husband is a wheelright and always earns his guinea a week ; he was a good workman but the drink was strong in him, and it was'nt often he brought me home more than five shillings out of his one pound on Saturday night, and it broke my heart to see the poor children too ragged to send to school, to say nothing of the starved look they had out of the little I could give them. Well, God be praised he took the pledge and the next Saturday he laid twenty-one shillings upon the chair you sit upon. O ! didn't I give thanks upon my bended knees that night? Still I was fearful it wouldn't last, and I spent no more than the five shillings I used to, may be the money will be more wanted than it is now. Well, the next week he brought me the same, and the next, and he next, until eight weeks had passed ; and, Glory to God ! there was no change for bad in my husband, and all the while he never asked me why there was nothing better for him out of his earnings, so I felt there was no fear for him, and the ninth week when he came home to me, I had this table bought and these six chairs, one for myself, four for the children and one for him : and I was dressed in a new gown, and the children all had new clothes and shoes and stockings, and upon his chair I put a bran new suit, and upon his plate I put the bill and receipt for them all just the eight sixteen shillings, the cost that I'd saved out of his wages, not knowing what might happen, and that always went for drink. And he cried, good lady and good gentleman, he cried like a baby, but 'twas with thanks to God ; and now where's the healthier man than my husband in the whole country of Cork, or a happier wife than myself, or decenter or better fed children than our own ?"

Race with an Indian.

The Editor of the Batavia Spirit of the Times has some of the rarest and raciest literary scraps that fall to our lot to read, and it makes no matter what the subject is, it is dashed off with rare wit and spirit. The following race with Indian John, beats the Hoboken feat all hollow.

On Saturday last, a small party, on their return from a *pic-nic* excursion to the Indian village, happened to meet about a mile this side the council house, the "fast" Indian, John Steeprock, (he who came so near winning the great ten-mile foot-race at Hoboken.) As some of the party was on their first visit to the Indian settlement, and were desirous of seeing an Indian foot-race, John was bantered for a run, and, by way of an inducement, was told that if he would reach the council-house (distance one mile and a trifle over) before we could drive there with our two-horse team and waggon, containing four persons, he should have a small purse, which was made up on the spot. John in a gutteral "na'h-wy" consented ; and, after divesting himself of boots and hat, and tying a handkerchief tightly around his waist and another round his head, was ready for a start. At the word "go," and with a crack of the whip, away he went —team and Indian—the latter "looping" off steadily, but rapidly, after the Indian style, and we crowding on with our team—a fast one —as swiftly as we dared. The road was undulating, winding, and, in some places rough. We thought it would be no "chore" at all to "distance" him, but very soon discovered our mistake, and commenced "paying out." It was no use. Mr. Indian now and then glanced back, and whenever we whipped up, he would whip up too. Several times he crossed and re-crossed the road, to get the best track —sometimes taking the foot-path beside the road, and occasionally bounding over a log, or bush, with a stride that was wonderful. At one time we came upon a smooth, "straight stretch," of thirty or forty rods, and by a little extra effort, shot ahead ; but it wouldn't do—we "were sold"—for, at the next hill, John respectfully raised his coat-flaps and bade us good-bye. He won the race by about six rods, and ran it in four minutes and 40 seconds ! It did not appear to fatigue him in the least.

Steamboat Race on the Lakes.

The new steamer Sultana had a race lately with the old broom carrier, the Empire, from Chicago to Detroit. When the Sultana arrived at Manitou Island, the Empire had just left, and there was a great commotion on board. The woodman on the dock informed them that the Empire had been there two hours, taken in forty cords of wood, and had been gone about forty minutes. There was a shout on board the Sultana when they heard this, which told that the passengers were getting up steam for the chase. The dancing which was going on in the after-cabin was broken up, and all hands fell to wooding. A man with a lantern could have seen the editor of the Cleveland Herald 'toteing' in wood, sweating like a wood-chopper, and a little further on the dock the editor of the Plaindealer might have been seen doing his best at 'hustling in the wood."

Great Fire at Nashua.

The machine shop of the Nashua Mechanics and Manufacturers Association was burnt to the ground on Saturday morning. The fire was discovered about half past 2 o'clock, and had made such headway, with a scarcity of water, to make it impossible to save the building. Considerable stock &c., was saved.

We learn from a Hull paper that an association has been formed in that town for the purpose of keeping journeymen shoemakers honest !

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TO CORRESPONDENTS.

"T T. L. of Michigan."—Cast iron pipe is the best for your purpose, but it is most expensive at first. Hydraulic cement pipe might stand the pressure, but we cannot recommend any thing about which there is a doubt.—There is one objection to iron pipe, viz. your water, the lime will sometimes corrode it.—Wooden logs would answer your purpose well enough. They will stand all the pressure,—and will not corrode as iron, and you can preserve them from freezing and decaying by covering them with about three inches of charcoal dust.

"J. H. W. of S. C."—We shall endeavor to give you the information you desire regarding the Barometer and Thermometer, next week. week. To fasten the cotton black—after it is finished in the logwood run the piece or yarn in the bundle through a weak solution of chrome. We had intended to give a number of receipts on dyeing before this, but have not been able to lay a system, as they will have to extend through a good many numbers. Wash the goods before they get the crome and dry out of it. The green in the O. Cultivator can be dyed as well in one hour as in three. You are correct regarding the keenness of the acid. If the boiler has an excess of acid in dyeing green too, it kills the tustic. Chemic should not be worked for nine days after it is made.

"S. L. D. of Pa"—Your article is delayed till next number. Nothing short of necessity is the cause of this.

"E. G. of Mass."—Although we are almost compelled to be no more sceptical about the success of any invention, because of the astonishing discoveries of the present age, yet we are sometimes in doubt. Your plan of trying to propel machinery by the elasticity of a fluid, we compare to the self internal power of that machine of machines, the human body. We are glad that you are going to build a model, to test the self-power of your machine. It is certainly original, and if successful, will fully prove that you have no common mechanical penetration We hope it may be so, and that you will inform us of the result of your experiment, whatever it may be. Its advantages would be very great for durability and economy.

"W. M of Ill."—We can furnish you with a good work on the principles of Mechanics for $1,50. If you communicate with Rapalje & Briggs, No. 18 Front st. Rochester, you can be supplied with the best of winnowing machines, and they can be easily exported from there to your state.

"A F of Ill."—We shall answer you next week.

"H. J. B. C. of N. C."—Your plan for a good well, by keeping out the brackish surface water is good, and if you burn marl shell and mix it when burnt with a portion of lime and sand you will have a good hydraulic cement. Or if you had plenty of good tough blue clay and puddle round the drum, it would keep out the water. You must at least raise the mouth of the well to an elevated mound and slope it to some distance. Common hydraulic cements are to be found in every city, and they are composed almost entirely of burned oyster shells in powder. The sets of the last half of volume 1, are all sold. The expense of binding the present volume will be $1.

"S. M. of Maryland."—The erection of windmills will soon be imperative in some districts of our Continent—those places where fuel is high and where there is but little water power. The nature of your country seems to demand the erection of one, and you are just the person to do it, for there has been no attention whatever paid to improvements in this old and useful engine. The mechanical mind appears to have been exclusively devoted to steam engines and water wheels. The old vertical vane mill is the best yet, having the roof movable, to be turned round on friction rollers when needed.

"W D. D. of Ohio."—You have not explained how your wheels are to receive rotary force from the steam. This is the most particular part in the construction of a rotary engine. In describing improvements in the steam engine, or rather new modes of applying the power of steam, the first impulse of the power should be distinctly stated—when it is applied, and in what manner. We prefer the one cylinder rotary to a two cylinder, because there will be less friction, and the only advantage endeavored to be gained by a rotary over a parallel engine, is the having no *dead points* to contend with.

"—. W. C. of Mass"—We would inform you and all others who do not already understand it, that we are not desirous of procuring any travelling agents to canvass for our journal.

"S. N. of W. T."—Your papers have all been forwarded to Columbus, Ohio, as first ordered.

"A. T. P. of Ill."—The American Mechanic is a paper that we know not of.

"J. D. of Rochester, N. Y."—The dollar that you mention as having enclosed in the letter did not come.

"L. M. W. of Ct."—A person called at our office a short time since and ordered your paper discontinued.

"J. C. of Hector, N. Y."—Please send us $1 and we will comply with your request.

"R. M. W. of Summit Point."—The back numbers of the present volume cost $1,75 per set.

Mechanics' Mutual Protection.

Worthy P. G. S.

I desire to know if the printed proceedings of the Annual Convention can be correct, when some parts are omitted and others wrong stated, and those published which should not be. Such as the several expenses of the different delegates not mentioned; one fourth of the late G. S.'s report omitted; also the manner in which the Grievance Committee was appointed, as wrongfully published, and also why the petition *was*, after the understanding on the subject. The proceedings of the Convention, as published, are entirely wrong. A DELEGATE.

New York.

An answer to "A Delegate," in our next.

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☞ This paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares and materials as are generally used by those classes. The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.

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THE UTILITY of this invention so far exceeds the expectation of the inventor that he has been induced to engage in the manufacture of them to a large extent. It is understood from the engraving, that the proper position of the instrument is vertical, and that the weight of the ball will keep the index in a perpendicular position, so that either the bottom or side of the frame being placed against a horizontal, vertical or oblique surface, the index will show its inclination, (if there be any) in degrees.

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To render visible the opposite currents into which Fluids are thrown whilst they change their temperature.

Fill a common eight-ounce phial, or cylindrical glass jar, but 2 inches or more in diameter, and five or six inches long, with cold water, and diffuse through it a small portion of pulverized amber: let the phial of water be immersed into a tumbler, or larger vessel, containing hot water; this being done, two currents, going in different directions, will be observed in the inner vessel, the one ascending, and the other descending; that is to say the minute particles of amber, which were diffused through the fluid, and were at rest before the heat was applied to the water in the inner vessel, will be seen in motion; those particles that are situated towards the side of the glass, or which are nearest to the source of heat, will move upwards, whilst those that are in the centre move downwards; and thus two distinct currents are formed in opposite directions; the central one being directed downwards, and the exterior one upwards. These currents gradually diminish in velocity and, when the water in the inner vessel has acquired the same temperature as that in the outer one, the particles of amber will again be brought to a state of rest.

If the position of the two vessels be reversed, namely, if the glass containing hot water be immersed into a vessel containing cold water, the motion of the currents will also be reversed; the particles next to the sides of the glass are thrown into currents, directed downwards whilst the particles in the centre form a current directed upwards. The equilibrium of these two currents will also be restored, when the equalization of temperature of the water within, and that without, has been effected.

Singular Galvanic Experiment.

Weinhold the philosopher, cut off a cat's head, and when its arterial pulsation had ceased, took out the spinal marrow, and placed in its stead an amalgam of mercury, silver and zinc; immediately after this was done, the pulsation was recommenced, and the body made a variety of movements. He took away the brain and spinal marrow of another cat, and filled up the skull and vertebral canal with the metalic mixture. Life appeared to be instantly restored—the animal lifted up its head, opened and shut its eyes, and looking with fixed stare, endeavored to walk, and whenever it fell, tried to raise itself upon its legs. It continued in this state 20 minutes, when it fell down and remained motionless. During all the time the animal was in this state, the circulation of the blood appeared to go on regularly; the secretion of the gastric juice was more than usual, and the animal heat was re-established.

Diamond Dust.

Recently there has been a discovery—dust upon steel—it gives the finest edge to all kinds of cutlery, and threatens to dethrone the hone of Hungary. It is well known that in cutting a diamond (the hardest substance in nature,) the dust is placed on the teeth of a saw, to which it adheres, and thus permits the instrument to make its way through the gem. To this dust, too, is to be attributed solely the power of man to make brilliants from rough diamonds: from the dust is obtained the perfection of the geometrical symmetry which is one of the chief beauties of the mineral, and also that adamantine polish which nothing can injure or efface, save a substance of its own nature. The power of diamond upon steel is remarkable; it is known to paralize the magnet in some instances—and may there not be some peculiar operation upon steel which philosophers have not yet taught us to be familiar with? How is it that a diamond cast into a crucible of melted iron converts the latter into steel?—Whatever may be said, it is evident that the diamond dust for sharpening razors, knives and cutlery, is a novelty which is likely to command the attention of the public, whether or not it is agreed that there is anything beyond the superior hardness of the dust over the steel to give it that keenness of edge that has surprised all who have used it. And if the best carbon (charcoal) be used, what would be the advantages? Let this be tried. We know that it possesses the same electrical properties of the diamond, and the diamond is just a piece of carbon.

Preparation of Coffee.

In *Silliman's Journal*, we find a notice of a memoir on Coffee by the distinguished French chemist, M Payen. The results brought out by his chemical researches agree exactly with facts previously known in regard to this article. A great error in the preparation of coffee, is that it is *burned too much* by which the liquid when it is brought to the table, is destitute of agreeable flavor, and has a bitter unpleasant taste. The reason of this is shown.

"Coffee roasted only till it becomes slightly red, preserves the maximum of weight and of aroma, but gives out less coloring matter. In this state, 100 pounds are found to have lost 15, but have increased to the bulk of 130. Roasted to a chesnut color, as is commonly done, the loss is 20 per cent, while the increase in volume is from 100 to 153. This swelling of the grain depends upon the property which the nitrogenous matter deposited within the tissue has of puffing up remarkably when heated.

"If the heat is continued until a dark brown color is produced, and the grain is covered with a sort of glaze, the loss is twenty-five per cent., while the original quantity of nitrogen, 2. 45 per cent, is reduced to 1. 77, being a loss of one-fourth."

The soluble matter was also found to be much greater in the coffee subject only to a low degree of burning—the brown giving 16, 15, the chesnut-colored 19, 00 per cent. The difference in "the aroma," it is added, "being nearly the same, the lower degree of roasting will produce not only the best and most nutritious beverage but one tree from the harsh and bitter flavor caused by the action of too high heat upon the nitrogenous matter.

The Archimedean Balloon.

Balloons are queer things and Douglas Jerrold speaking of one lately invented in London gives it some queer hits. We had lately (he says) to record in our columns how Mr. Gale had succeeded in furnishing that purblind, deaf and giddy creature, the old balloon, with a pair of excellent eyes and ears. We have now to state that Mr. Joseph Pitter of Hastings, has explained his plan for constructing a new aerial machine on perfectly ship-shape principles, having little or no affinity to the aerial ship of nearly forgotton notoriety. The Archimedean Balloon is to be worked by paddles, and steered with a screw; it is to have a handsome deck, and above it, a long cylindrically-shaped silken bag or sail inflated with gas, and below the deck a number of bags of gas are to be fastened, to add to the buoyancy of the whole machine. Mr. Pitter proposes to procure a motion at any angle with the horizon, by the revolution of four paddle-wheels, which have their float boards broadways during any required half of their revolution, and edgeways while passing through the other half. A motion to any point of the compass is procured by means of an apparatus at the stern similar to the Archimedean screw, and being made to revolve in a vertical plane on an axis at right angles to the course of the machine, it brings the stern round to the right or left, according to the direction in which the screw revolves, and thus the head of the machine is pointed in the right direction. The probability is, however, not very small, that the Archimedean Balloon when its powers are absolutely tested, will be found an "airy nothing."

Recipe for Burns.

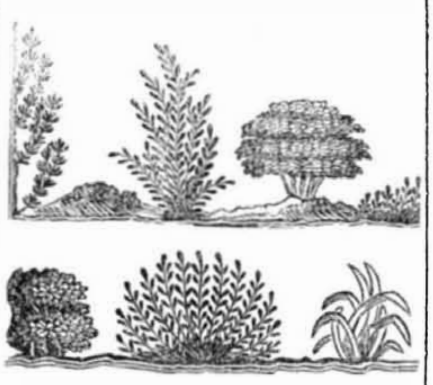
The London Lancet gives the particulars of an attorney who burnt his hands by endeavoring to extinguish the flames which had caught his bed curtains,—the blisters were not broken, and the patient immersed his hands in a solution of *chloride of soda* in water, and wrapping his hands in lint, in the morning only one patch remained.

The coral rock which causes a navy to founder is the work of an insect.

THE ART OF PAINTING.

(*Continued from No* 46.)

LANDSCAPE PAINTING ON WALLS OF ROOMS.



In finishing up landscape scenery, it is neither necessary or expedient, in all cases to imitate nature. There are a great variety of beautiful designs, which are easily and quickly produced with the brush, and which excel nature itself in picturesque brilliancy, and richly embellish the work, though not in perfect imitation of anything. This remark is particularly applicable to various wild shrubbery suitable for filling up the foreground. and usually based on the bottom of the first distance, and painted in full size, being supposed to be somewhat nearer than the large trees of the foreground. Of this variety we have presented a few samples at the head of this article. The first in order in the form of poplar sprouts, are often placed at the sides of doors or windows of the room, to form a sort of border to other scenery. The second, a tall fern, is always convenient to fill a vacancy, or conceal any defect in the painting on the first or second distance; and this, as well as the cluster of sage-willow below, is produced in one minute by the dexterous use of the cutting-brush, properly adjusted. These are first painted with dark green, but each leaf is heightened on the light side with bright chrome yellow. The stems of the sage willow may be drawn with vermillion; and the cluster of barberry on the first ground may be heightened with yellow, and finished with judicious and tasteful touches of vermillion, representing clusters of the ripe berry. The low oak shrubbery on the lower ground, is first formed with a large tree-brush, and fancifully heightened with venitian red, French green, and yellow ochre, interspersed. The flags are uniformly heightened with bright French green. A variety of bowers, especially the wild sun-flower, lilacs, lillies, lupines, Chinese pinks and snow-balls, may be expeditiously produced by the cutting brush, and without the use of the hair-pencil. Rough ledges of rock, are also often applied to give variety to the first distance. Two dark horizontal stripes, about two inches apart, should be drawn round the room at the base of the scenery,—this is very readily accomplished by means of a straight rod, or four feet rule, and a cutting brush,—and the space between these stripes and the floor should be painted plain, with a dark stone color, the better to give good effect to the scenery. We shall proceed in our next number to give a variety of outline designs.

(*To be continued.*)

Stone Rope.

A rope, nearly three miles long, now lies at Gateshead, England, which was the other day a stone in the bowels of the earth! Smelted, the stone yielded iron. The iron was converted into wire. The wire was brought to the wire-rope manufactory near Gateshead, and there twisted into a line 4,660 yards long. It is the stoutest rope of the kind ever made. It weighs 20 tons 5 cwt. and will cost the purchasers $5,508. It is intended for the incline on the Edinburgh and Glasgow Railway near the latter city. A rope of hemp, of equal strength, would weigh 33½ tons and cost $1,400 more.

Bathing.

Bathing or washing, keeping the body clean and the pores open, must be more healthy and desirable, but the application of a bucket or two of cold water pouring upon the head every morning, is something which after getting used to it, a person might *endure*, for purposes of cleanliness, but there is another mode in the simple sponge or towel bathing, which involves no expense, makes no extra labor, and avoids the lumberage of a shower bathing machine, which in many cases, people cannot procure and have no room for. A large sponge and a tub of water can make a very good bath.

Freezing Water.

Water in freezing crystalizes in filiments, which are uniformly joined at angles of 60 or 120 degree. The word crystal originally signified ice. In a boiler the water nearest the bottom is the hottest, because it is bearing an additional pressure proportioned to the depth, and does not, therefore, give out the steam which it would part with if a little higher up.

Deaths from Punctures in Dissection.

From accurate researches, it appears that during a period of 21 years, from 1826 to 1846, 33 students belonging to the Faculty of Medicine of Paris, died of supperative fever, arising from punctures received in dissection. It appears also, that during the same period, the rate of mortality was only 1 in 80 among students of law, and 1 in 75 among students of the Polytechnic (Military) School, it was at least 1 in 50 among the students of Medicine.

Food of Man.

The ancient Athletie of Greece were fed upon new cheese, boiled grain and water and sometimes on bread, water-cresses and salt.

The Pearl-leaf has 24,000 pores to the under side. The Pink has about 38,500.—Some plants have as many as 160,000.

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